

Figure 1

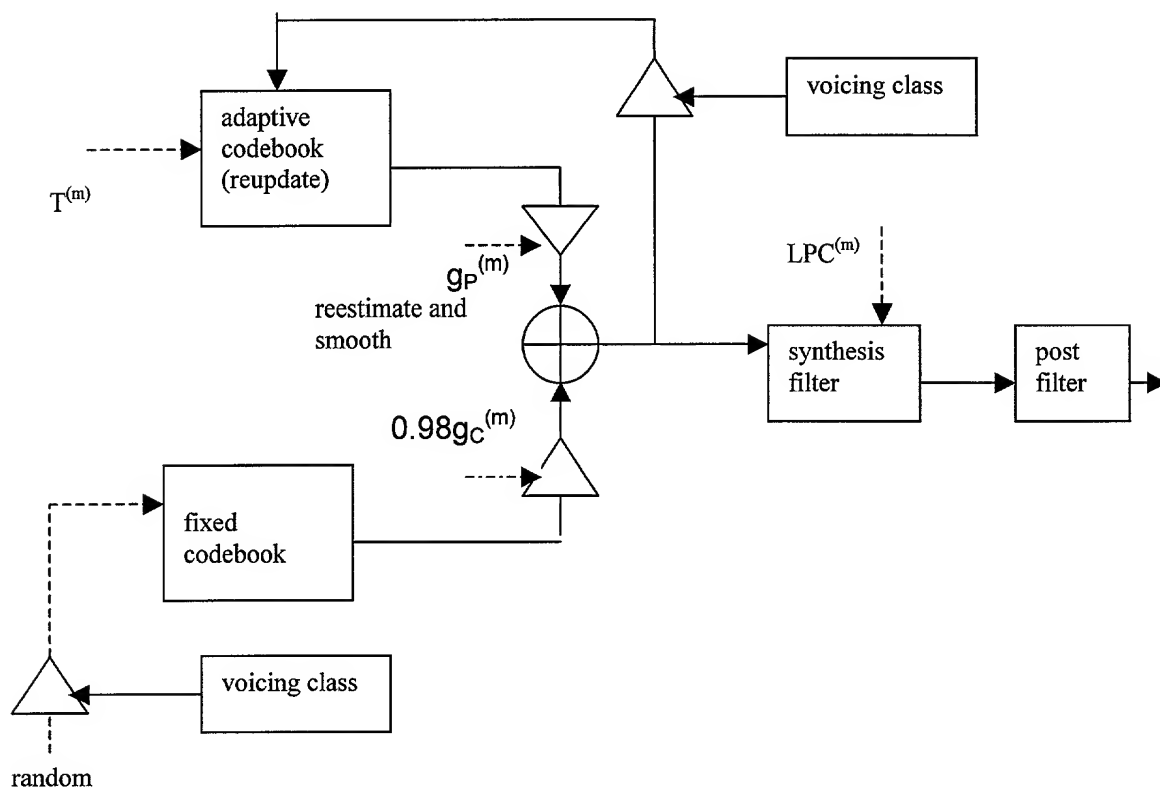
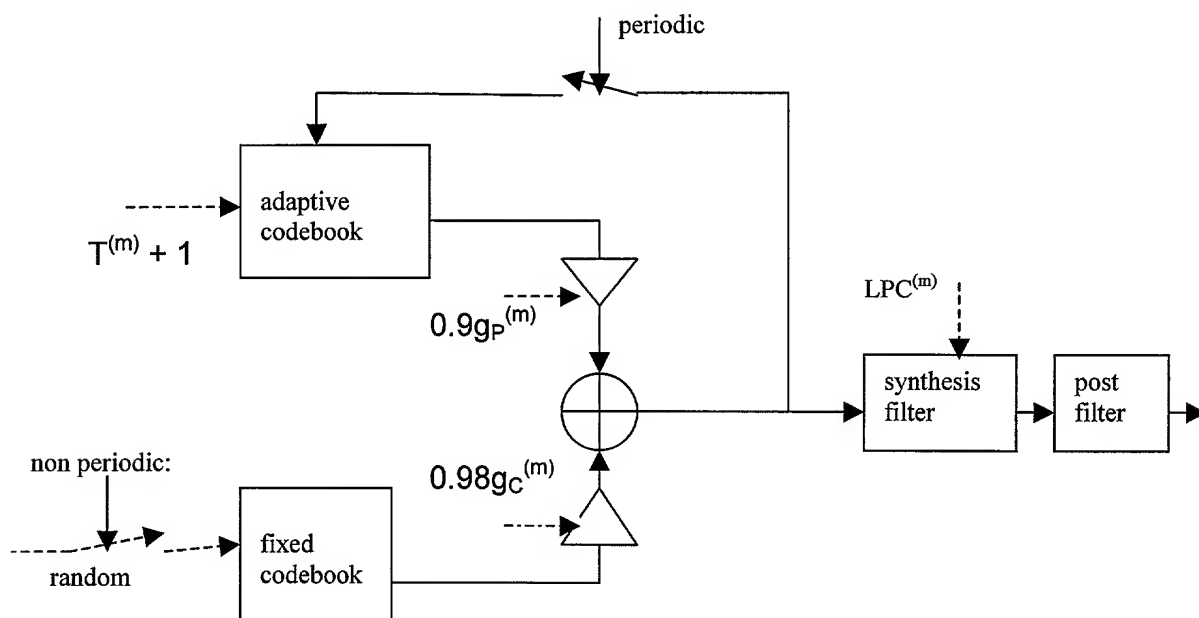


Figure 2 (prior art)



```
graph TD
    Input[INPUT SPEECH] --> Pre[PRE-PROCESSING]
    Pre --> LP[LP ANALYSIS QUANTIZATION INTERPOLATION]
    LP -- "LPC INFO" --> Syn[SYNTHESIS FILTER]
    LP --> Sum1((+))
    Sum1 --> Syn
    Syn --> Sum2((+))
    Sum2 --> LP
    Sum2 --> Pitch[PITCH ANALYSIS]
    Sum2 --> CB[FIXED CB SEARCH]
    Sum2 --> PW[PERCEPTUAL WEIGHTING]
    PW -- "LPC INFO" --> Syn
    PW --> Pitch
    PW --> CB
    Pitch --> PE[PARAMETER ENCODING]
    CB --> PE
    PE -.-> Output[TRANSMITTED BITSTREAM]
```

The diagram illustrates a speech coding system. It begins with 'INPUT SPEECH' entering a 'PRE-PROCESSING' block. The output of 'PRE-PROCESSING' goes to 'LP ANALYSIS QUANTIZATION INTERPOLATION'. This block outputs 'LPC INFO' to a 'SYNTHESIS FILTER' and also branches off to a summing junction (represented by a circle with a plus sign). The 'SYNTHESIS FILTER' also receives input from this summing junction and outputs to another summing junction. This second summing junction feeds back into the 'LP ANALYSIS QUANTIZATION INTERPOLATION' block and also branches off to three other blocks: 'PITCH ANALYSIS', 'FIXED CB SEARCH', and 'PERCEPTUAL WEIGHTING'. The 'PERCEPTUAL WEIGHTING' block receives 'LPC INFO' from above and outputs to 'PITCH ANALYSIS', 'FIXED CB SEARCH', and back to the 'SYNTHESIS FILTER'. The outputs of 'PITCH ANALYSIS' and 'FIXED CB SEARCH' are combined and fed into a 'PARAMETER ENCODING' block, which finally outputs the 'TRANSMITTED BITSTREAM'.

*FIG. 4*

```
graph LR
    FC[FIXED CODEBOOK] --> GC[G_C]
    AC[ADAPTIVE CODEBOOK] --> GP[G_P]
    GC --> Sum((+))
    GP --> Sum
    Sum --> STF[SHORT-TERM FILTER]
    STF --> PP[POST-PROCESSING]
```

Figure 5

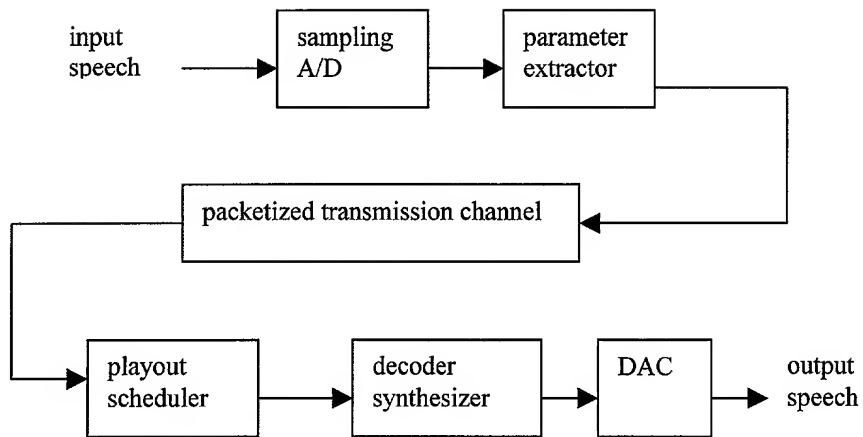


Figure 6

